UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,151	11/20/2003	I-Jong Lin	200312186-1	8992

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EXAMINER
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ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
09/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

		Application No.	Applicant(s)
Office Action Summary		10/718,151	LIN, I-JONG
		Examiner	**Art Unit**	
		Alex Liew	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-25* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-25* is/are rejected.

7) ☒ Claim(s) *6* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 6 objected to because of the following informalities: Claim 6 is dependent

on itself. Appropriate correction is required.   .

Claim Rejections - 35 USC § 103 ·

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1 – 11, 13 – 17, 19 – 23 and 25 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Bilbrey (US pat no 6,020,931) in view of Chen (US pat no

6,556,704).

With regards to claim 1, Bilbrey discloses a method for displaying an occlusion of a

display on said display comprising the steps of:

- generating an image on said display (see figure 53, element 3335, is the image

  created from cameras 3312 and 3310);

- capturing first contents of said display with an image capture device, said image

  capture device being spaced from said display (see figure 53, element 3312

  captures image of the objects, 3330 and 3340, and background, 3332);

- analyzing said first contents to identify a first set of potentially occluded pixels (see column 37, lines 12 to 16, the foreground and background pixels are analyzed not being in their first and second color, respectively);

- changing a value of said first set of potentially occluded pixels on said display (see column 37, lines 16 to 21, the object image pixels are changed to mask image pixels, shown in figure 53, element 3383 with 3335 being the original image); and

- capturing second contents of said display with said image capture device (see figure 35, element 3310 is the second imager, which captures the second image content).

Bilbrey does not disclose selectively confirming said first set potentially occluded pixels and generating said confirming occluded pixels. Chen discloses selectively confirming said first set potentially occluded pixels as confirmed occluded pixels based on said second contents (see figure 1, the top image is the first image content and the bottom image is the second image content; the person in the image is read as the occluded pixels, both images are needed to calculate the depth image, 10, the depth pixels are calculated, this is discussed on column 6, lines 53 to 67 and column 7, line 1, the object in the bottom image confirms the occluded pixels of the top image) and generating said confirmed occluded pixels on said display using a predetermined display value (the generated image is shown in figure 1, element 10).

One skilled in the art would include selectively confirming said first set potentially occluded pixels and generating said confirming occluded pixels of second image

content because to create a three dimensional image of the object image, where more details are shown improving details of the image.

With regards to claim 2, an extension to the arguments to the rejection of claim 1, Chen reads on analyzing said first contents to identify said first set of potentially occluded pixels further comprises the step of comparing a value of each pixel of said first contents to a corresponding value of each pixel of said image (see equation 1, u_0 and u_1 are pixel values from top and bottom image, respectively, and are compared to find the disparity of both image).

With regards to claim 3, an extension to the arguments to the rejection of claim 1, Chen reads on display values represent one of a color and intensity (see column 3, lines 58 to 61, the depth values also contain color values).

With regards to claim 4, Bilbrey discloses a method of claim 1, wherein said step of changing a value further comprises the step of changing said value of said first set of potentially occluded pixels to a reserve value (see column 37, lines 16 to 22, the first key generator produces color for the foreground image image); and regenerating said display using said reserved value for said first set of potentially occluded pixels and image values for remaining pixels (see figure 53, element 3383, the object image pixel values are reversed from object image pixel values from 3335).

With regards to claim 5, an extension to the arguments to the rejection of claim 1, Chen reads on identifying display pixels within a predetermined distance of said confirmed occluded pixel as a second set of potentially occluded pixels (see figure 1, the object image pixels in bottom image is identified / read as occluded pixels); and changing a value of said second set of potentially occluded pixels on said display to a reserved value (see figure 1, element 10 the pixels in the bottom image is changed to the pixel values in the depth image with the help of the pixel values in the top image). Bilbrey made a suggestion where his invention is not only limited to using only two cameras, but there can be more than two cameras, shown in figure 54; the image of the person is taken at plurality of perspective. Bilbrey discloses capturing third contents of said display using said image capture device (see figure 54) and the combination of Bilbrey's third camera shown in figure 54 and Chen's method of confirming potentially occluded pixel (see figure 1): disclose selectively confirming said second set of potentially occluded pixels as confirmed occluded pixels based on said third contents. One skilled in the art would include a third image content because to have one more perspective view of the object image, to create another three dimensional image to increase recognition of the object in the image.

With regards to claim 6, Bilbrey and Chen disclose all the limitations discussed in claim 5, but do not disclose having the user select a predetermined distance. However, it is well known in the art to have the user / operator select parameter any type of image analysis (MPEP 2144.03). Chen suggests having the user inserting information into

computer software (see column 5 line 67 and column 6, lines 1 to 2). One skilled in the art would include having a user select certain parameters for an image analysis function because the user might be an expert and can custom modified an image to filter out any defects or artifacts in an image.

With regards to claim 7, Bilbrey discloses a method for processing a displayed image comprising the steps of passively testing a version of said displayed image captured by an image capture device to determine if a portion of said display image is blocked from said image captured device (see column 37, lines 12 to 16, the foreground and background pixels are analyzed not being in their first and second color, respectively, the foreground pixels being the occluded pixels), but does not disclose actively testing said portion of said displayed image.

Chen discloses actively testing said portion of said displayed image to confirm whether said portion of said display image is blocked from said image capture device (see figure 1, the top image is the first image content and the bottom image is the second image content; the person in the image is read as the occluded pixels, both images are needed to calculate the depth image, 10, the depth pixels are calculated, this is discussed on column 6, lines 53 to 67 and column 7, line 1, the object in the bottom image confirms the occluded pixels of the top image).

One skilled in the art would include selectively confirming said first set potentially occluded pixels and generating said confirming occluded pixels of second image

content because to create a three dimensional image of the object image, where more details are shown improving details of the image.

With regards to claims 8, 14 and 20, see the rationale and rejection for claim 2.

With regards to claims 9, 10, 15, 16, 21 and 22, see the rationale and rejection for claim 5.

With regards to claim 11, Bilbrey discloses actively testing all of the pixels of said display image, prior to said step of passively testing, to initialize an estimate of said display image (see figure 53, element 3335, is the initial image before determining the occluded pixels; the occluded pixels being the pixel values which represent the man and desk).

With regards to claims 13, 19 and 25, see the rationale and rejection for claim 7.

With regards to claims 17 and 23, see the rationale and rejection for claim 11.

3.   Claims 12, 18 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bilbrey ('931) in view of Chen ('704) as applied to claim 7, further in view of Prakash (US pub no 2002/0131495).

With regards to claim 12, Bilbrey and Chen disclose all the limitations discussed in claim 7, but do not disclose changing threshold associated with said step of passively testing. Prakash reads on changing a threshold associated with said step of passively testing said version of displayed image (see figure 5, element 508), based upon a result of said step of actively said portion of said displayed image (see figure 5, element 504, the pixel on the outer rim is read as the occluded pixel). One skilled in the art would include changing threshold values because to better detect object in the image using difference method; if the contrast and brightness of the two images are on two extremes (for example one image is very dark and other is very bright) the image object extraction might not work, due to the difference in brightness, so it is necessary to change this difference threshold to improve image object extraction.

With regards to claims 18 and 24, see the rationale and rejection for claim 12.
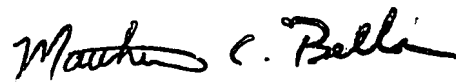
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex Liew whose telephone number is (571)272-8623. The examiner can normally be reached on 9:30AM - 7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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9/1/07

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